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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,313	11/14/2003	Ulrich Kallmann	860-011559-US( PAR)200203	1235
2512	7590	11/02/2005	EXAMINER	
PERMAN & GREEN 425 POST ROAD FAIRFIELD, CT 06824			AL NAZER, LEITH A	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/713,313

Applicant(s)

KALLMANN ET AL.

Examiner

Leith A. Al-Nazer

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
- Paper No(s)/Mail Date 14 November 2003.

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

The section titled "Brief Description of the Drawings", found on page 8 of the specification, does not include a brief description of each of the figures.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 3, 5, and 23 are objected to because of the following informalities:

- a. Claim 3 recites "wherein step comprises a step of controlling..." This phrase is incomplete.
- b. Claim 5 recites "prior to step a step of adjusting..." This phrase is incomplete.
- c. The words "the steps of" in the first line of claim 23 should be removed since the claim is an apparatus claim.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 23 recite "the optical signal". There is a lack of antecedent basis for this limitation in the claims.

Claim 4 recites "the at least one target beat frequency". There is a lack of antecedent basis for this limitation in the claim.

Claim 6 recites "the predetermined frequency range of the actual frequency". There is a lack of antecedent basis for this limitation in the claim.

Claims 7-10, 12, 13, and 24 recite "the superimposed signal". There is a lack of antecedent basis for this limitation in the claims.

Claims 10 and 21 recite "the preselector". There is a lack of antecedent basis for this limitation in the claims.

Claims 12, 13, and 17 recite "the deviation value". There is a lack of antecedent basis for this limitation in the claims.

Claim 14 recites "comparing the at least two actual beat frequencies with the at least two actual beat frequencies". This phrase is vague and indefinite, and as a result, Examiner is unsure what method step Applicant is attempting to claim.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-18 and 20-24 are rejected under 35 U.S.C. 102(b) as being anticipated by European Patent Application Publication No. EP 1 075 063 A2 to Gambini.

With respect to claims 1, 4, 6-10, 12-14, 19, and 21, Gambini teaches a method of controlling an optical signal, comprising the steps of: (a) determining at least one actual beat frequency derived from a superposition of at least one optical reference signal (2) with the optical signal (1) having an actual frequency, and (b) using the at least one actual beat frequency in order to control the actual frequency (figure 1).

With respect to claims 2 and 15-18, Gambini teaches providing a comb of optical reference signals (2), preferably controlled by an electrical master clock signal.

With respect to claim 3, Gambini teaches a step of controlling the actual frequency by at least substantially matching the at least one actual beat frequency with at least one target beat frequency (9).

With respect to claim 5, Gambini teaches prior to step a step of adjusting the actual frequency to be in a predetermined range (column 4, lines 10-35).

With respect to claim 11, Gambini teaches determining the beat frequencies of at least two, preferably at least three, interference signals generated by the superposition of the optical reference signals (2) with the optical signal (1); evaluating a deviation value by comparing the detected actual beat frequencies (7) of the interference signals with the target beat frequencies (9), the deviation value indicating a mismatch, if any,

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between the target beat frequencies and the actual beat frequency (8; column 4, lines 10-35); evaluating the sign of the deviation value on the basis of the detected at least two, preferably at least three, actual beat frequencies of the interference signals (column 4, lines 10-35).

With respect to claim 20, Gambini teaches filtering (7) at least two, preferably three, actual beat frequencies within a predetermined bandwidth; the predetermined bandwidth covering the actual frequency of the optical signal (1); detecting (5) at least two, preferably at least three, actual beat frequencies of a superposition of the optical reference signals of the comb with the optical signal; evaluating a deviation value by comparing the detected actual beat frequencies with the target beat frequencies (9) to detect a mismatch, if any, between the target beat frequencies and the actual beat frequencies (8 and 10-12 in figure 1).

With respect to claim 22, Gambini teaches a method of providing an optical signal (1), comprising the steps of: providing at least one optical reference signal (2); providing the optical signal (1) having an actual frequency; superimposing the at least one optical reference signal with the optical signal (4); executing the method of claim 1 for controlling the actual frequency of the optical signal (figure 1; column 4, lines 10-35).

With respect to claims 23 and 24, Gambini teaches a system for controlling an optical signal, comprising the steps of: a determining unit (7) adapted for determining at least one actual beat frequency derived from a superposition of at least one optical reference signal (2) with the optical signal (1) having an actual frequency; and a

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controller (10) adapted for using the at least one actual beat frequency in order to control the actual frequency.

***Allowable Subject Matter***

7. Claim 19 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. The following is an examiner's statement of reasons for allowance:

The prior art of record fails to teach or suggest one or more of the limitations found in dependent claim 19. With respect to claim 19, the prior art of record fails to teach or suggest combining the loop filtered error signals with a positive or negative sign according to the scheme outlined in the claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Citation of Pertinent References***

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents further show the state of the art with respect to frequency stabilization:

- a. U.S. Patent No. 3,946,329 to Caspari
- b. U.S. Patent No. 4,347,483 to Flasz et al.
- c. U.S. Patent No. 4,468,773 to Seaton
- d. U.S. Patent No. 4,782,385 to Gunter et al.
- e. U.S. Patent No. 4,965,805 to Hayes
- f. U.S. Patent No. 5,153,888 to Imamura et al.

### ***Communication Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leith A. Al-Nazer whose telephone number is 571-272-1938. The examiner can normally be reached on Monday-Friday, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571-272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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TUYET VO  
PRIMARY EXAMINER

10/28/05